

THROTTLE POSITION SENSORS

Purpose and Function.

Modern engine management systems require detailed information about throttle position and rate of change. As many vehicle systems are influenced by throttle activity including fuelling requirements, transmission control strategy and accessories such as air conditioning accurate data is essential, a simple switch cannot provide this detail.

The sensors described below are full range sensors capable of operating in clockwise or anti-clockwise directions and are compact for fitment in restricted spaces.

For more detailed information about these products refer to our website www.bosch.com.au



THROTTLE POSITION SENSOR TECHNICAL DATA

Part Number	Electrical Measurement Range	Operating Voltage	Connector	Drive Type	Direction of Rotation	Max. Circuit Current	Figure
0 280 122 001	< 86°	5.0	1 237 000 039	"D"	Optional	< 18 uA	A
0 261 211 003	< 93°	5.0	Non-Bosch	Dual "V"	C/Clockwise	< 10 mA	B
0 261 211 004	< 93°	5.0	Non-Bosch	Dual "V"	Clockwise	< 10 mA	B

Details of sensor 0 280 122 001 (fig. A)

Characteristic curve 1.

A Internal stop, L Positional tolerance of the wiper when fitted, N Nominal characteristic curve, T Tolerance limit.

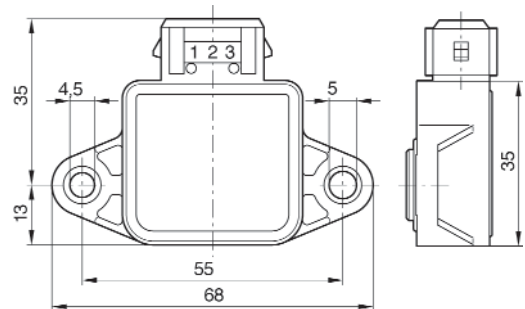
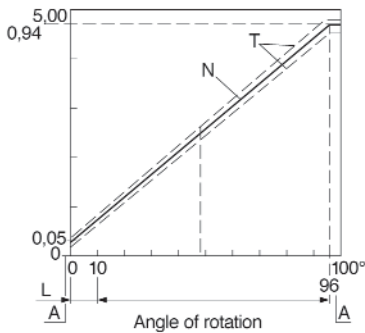
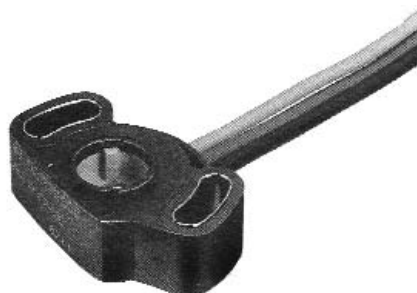
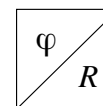


Image of sensor 0 261 211 003 / 4 (fig. B)



Throttle-valve angular-position sensor

Measurement of angles up to 88°



- Potentiometric angular-position sensor with linear characteristic curve.
- Sturdy construction for extreme loading.
- Very compact.



Application

These sensors are used in automotive applications for measuring the angle of rotation of the throttle valve. Since these sensors are directly attached to the throttle-valve housing at the end of the throttle-shaft extension, they are subject to extremely hostile underhood operating conditions. To remain fully operational, they must be resistant to fuels, oils, saline fog, and industrial climate.

Design and function

The throttle-valve angular-position sensor is a potentiometric sensor with a linear characteristic curve. In electronic fuel injection (EFI) engines it generates a voltage ratio which is proportional to the throttle valve's angle of rotation. The sensor's rotor is attached to the throttle-valve shaft, and when the throttle valve moves, the sensor's special wipers move over their resistance tracks so that the throttle's angular position is transformed into a voltage ratio. The throttle-valve angular-position sensor's are not provided with return springs.

Design

The position sensor 0 280 122 001 has one linear characteristic curve. The position sensor 0 280 122 201 has two linear characteristic curves. This permits particularly good resolution in the angular range 0°...23°.

Explanation of symbols

U_A Output voltage
 U_V Supply voltage
 φ Angle of rotation
 U_{A2} Output voltage, characteristic curve 2
 U_{A3} Output voltage, characteristic curve 3

Accessories for 0 280 122 001

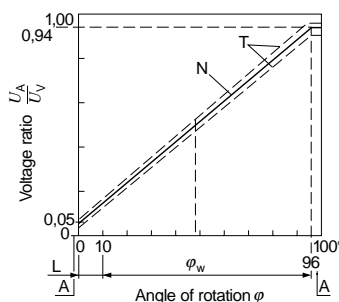
Connector 1 237 000 039

Accessories for 0 280 122 201

Plug housing 1 284 485 118
 Receptacles, 5 per pack,
 Qty. required: 4 1 284 477 121
 Protective cap, 5 per pack,
 Qty. required: 1 1 280 703 023

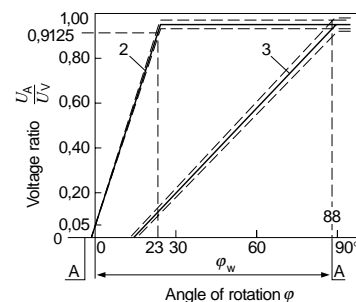
Characteristic curve 1.

A Internal stop, L Positional tolerance of the wiper when fitted, N Nominal characteristic curve, T Tolerance limit,
 φ_w Electrically usable angular range.



Characteristic curves 2 and 3.

A Internal stop,
 φ_w Electrically usable angular range.



Technical data / Range

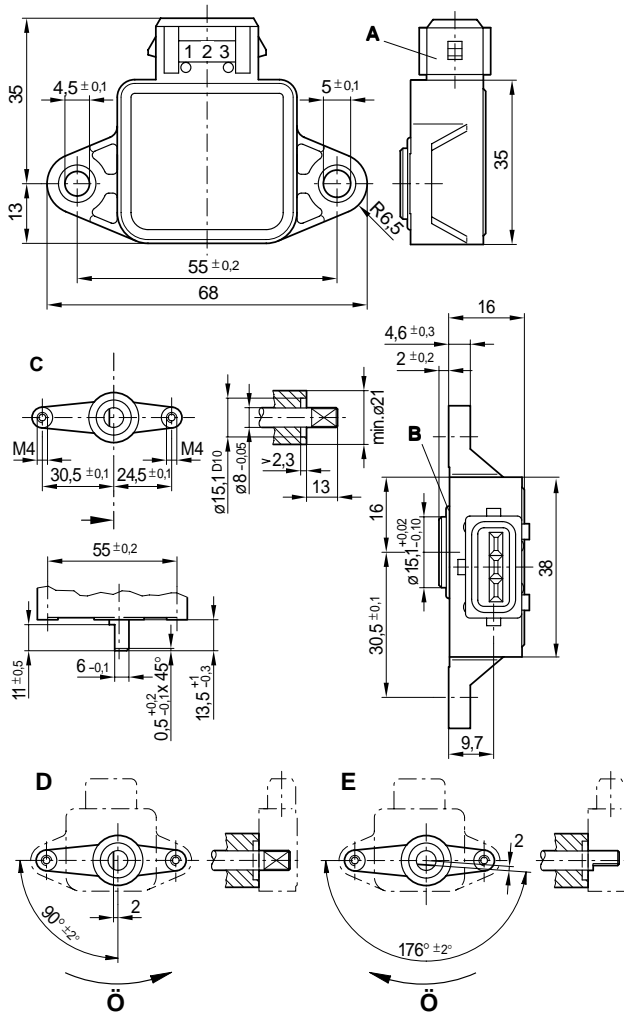
Part number	0 280 122 001	0 280 122 201
Diagram	1; 2	3
Useful electrical angular range	Degree ≤ 86	≤ 88
Useful mechanical angular range	Degree ≤ 86	≤ 92
Angle between the internal stops (must not be contacted when sensor installed)	Degree ≥ 95	–
Direction of rotation	Optional	Counterclockwise
Total resistance (Terms. 1–2)	k Ω $2 \pm 20 \%$	–
Wiper protective resistor (wiper in zero setting, Terms. 2–3)	Ω 710...1380	–
Operating voltage U_V	V 5	5
Electrical loading	Ohmic resistance	Ohmic resistance
Permissible wiper current	μA ≤ 18	≤ 20
Voltage ratio from stop to stop	Chara. curve 1 $0.04 \leq U_A/U_V \leq 0.96$ –	
Voltage ratio in area 0...88 °C	Chara. curve 2 – $0.05 \leq U_{A2}/U_V \leq 0.985$	
	Chara. curve 3 – $0.05 \leq U_{A3}/U_V \leq 0.970$	
Slope of the nominal characteristic curve	deg ⁻¹ 0.00927	–
Operating temperature	°C –40...+130	–40...+85
Guide value for permissible vibration acceleration	m · s ⁻² ≤ 700	≤ 300
Service life (operating cycles)	Mio 2	1.2

Dimension drawings.

- A** Plug-in connection,
 - B** O-ring 14.65 x 2 mm,
 - C** Fixing dimensions for throttle-valve housing, **D** Clockwise rotation ¹⁾,
 - E** Counterclockwise rotation ¹⁾, **Ö** Direction of throttle-valve opening.
- ¹⁾ Throttle valve in idle setting.

- F** O-ring 16.5 x 2.5 mm, **G** 2 ribs, 2.5 mm thick,
- H** Plug-in connection, **I** Blade terminal,
- K** This mounting position is only permissible when the throttle-valve shaft is sealed against oil, gasoline, etc., **Ö** Direction of throttle-valve opening,
- L** Fixing dimensions for throttle-valve potentiometer.

0 280 122 001



0 280 122 201

